

Sustainable Business Network of Massachusetts

Business as it Relates to Water Pollution & Environmental Justice (EJ) in Massachusetts

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Introduction

The goal of this report is to examine the role of business in relation to EJ issues in Massachusetts, with a specific focus on water pollution. Massachusetts has a serious history of pollution and violations of environmental laws, and to get a sense of the history of water pollution in the state, it can be helpful to examine some of these cases. The two cases examined in this report are enforcement cases against the Massachusetts Bay Transportation Authority (MBTA), a public agency, and the Exxonmobil Corporation, for violations of the Clean Water Act (CWA). This federal legislation was built off of the 1948 Federal Water Pollution Control Act and was passed in 1972 to safeguard our nation's waters by reigning in water polluters with certain regulations (Environmental Protection Agency [EPA], 2020).

While the MBTA and Exxonmobil cases exemplify enforcement of this crucial federal law, too often polluters are not held accountable, particularly in industry. A report published by the Environment Massachusetts Research & Policy Center analyzed publicly available data from the EPA and found that each year from 2011 to 2017, an average of 27,849 facilities were non-compliant with the CWA across the U.S. (Berg et al 5). An average of less than half of these facilities faced any EPA or state enforcement action, and even when non-compliant facilities do face enforcement, fines are often too low to deter polluters (Berg et al 5).

State data reveal that during a 21-month period from January 2016 to September 2017 major industrial facilities in Massachusetts exceeded their pollution permit limits 124 times; in 18 of these instances they exceeded the limit by over 100% (Berg et al 32). Massachusetts ranked among the top ten states for “Most Exceedances into Impaired Waters”, which are waters that are already deemed too polluted by the EPA’s standards for their designated usage; this could be providing drinking water, serving as a wildlife habitat, or being used for activities like fishing and swimming (Berg et al 17). Massachusetts again ranked in the top ten but for the “Worst Facility Exceedance Rates”, which is the percentage of facilities in the state that exceeded their permits (Berg et al 17). These data are evidence that present federal regulation alone is insufficient in deterring firms from polluting into Massachusetts waters.

Further, when businesses do pollute, not all people are impacted equally. Findings from Daniel R. Faber and Eric J. Krieg in *Unequal Exposure to Ecological Hazards 2005: Environmental Injustices in the Commonwealth of Massachusetts* are included in this report to echo what decades of research in the EJ and environmental racism realm already prove: communities of color are systematically overburdened with environmental hazards (including water pollution) (Faber & Krieg).

This report demonstrates how impactful businesses are to the communities in which they operate, and whether they function as mechanisms to cause harm or to create value. For over 30 years, organizations like the Sustainable Business Network of Massachusetts (SBN) have recognized the potential that small and local businesses have in creating not just economic value but also social and environmental value within their communities, including communities of color (SBN). The latter section of this report will showcase businesses who embody the SBN mission of making business a vehicle for social, environmental, and economic change rather than the antithesis (SBN).

Federal Policy

Table 1. A Few Crucial Federal Policies

Year	Policy	Summary
1980	The Comprehensive Environmental Response, Compensation, and Liability Act (aka CERCLA or Superfund)	This act gives the EPA the authority and the funds to clean up uncontrolled or abandoned hazardous waste sites in the nation (EPA).
1972	The Clean Water Act (CWA)	This act regulates the discharge of pollutants into the nation's waters (EPA).
1974	The Safe Drinking Water Act (SDWA)	This law regulates the nation's public drinking water supply and protects the water and its sources from contamination by setting health standards (EPA).

The Bay State Superfund Sites

A National Priorities List (NPL) Site (Superfund Site) is a severely contaminated site, and is one kind of ecological hazard to EJ communities (EPA). Neighborhoods in the state of Massachusetts are considered EJ populations if any one or more of the following criteria are met:

- the annual median household income is not more than 65 per cent of the statewide annual median household income;
- minorities comprise 40 per cent or more of the population;
- 25 per cent or more of households lack English language proficiency; or
- minorities comprise 25 per cent or more of the population and the annual median household income of the municipality in which the neighborhood is located does not exceed 150 per cent of the statewide annual median household income (Mass.gov).

Other types of ecological hazards include manufacturing facilities, processing plants, landfills and mining sites (EPA). These sites are evidence of some of the most severe and concentrated cases of pollution in the state and may indicate acts of environmental injustice (also considered environmental racism); In Massachusetts, communities of color experience a far greater exposure rate to the Massachusetts Department of Environmental Protection (DEP) hazardous waste sites - including Superfund sites - than do primarily white communities (Faber & Krieg 10). As of May 14, 2021, there are 1327 Superfund sites in the United States, 31 of which are located in Massachusetts (EPA).

The health impacts Superfund sites have on the residents living and working near them is alarming. The National Research Council identified elevated rates of heart disease, spontaneous abortions and genital malformations, and death among these residents (Faber & Krieg 13). Among infants and children, a higher incidence of cardiac abnormalities, leukemia, kidney-urinary tract infections, seizures, learning disabilities, hyperactivity, skin disorders, reduced weight, central nervous system damage, and Hodgkin's disease is identified (Faber & Krieg 13). Many scientists also link exposure to industrial chemicals to the cancer epidemic (Faber & Krieg 13). Even more unnerving is that 22% of the U.S. population lives within 3 miles of one of these Superfund sites, and almost half of these residents are minorities (EPA).

Daniel R. Faber and Eric J. Krieg validated that in the Commonwealth, lower income and communities of color experience unequal exposure to environmentally hazardous industrial

facilities, power plants, municipal solid waste combustors (incinerators), toxic waste sites, landfills of all types, and trash transfer stations (9-10). To measure the cumulative exposure of communities to these facilities and sites, the study uses a point system which weighs the average risk of each kind (Faber & Krieg 9). Two key findings are: Low income communities in Massachusetts (\$39,525 or less median household income) face a cumulative exposure rate to environmentally hazardous facilities and sites which is four times greater than high income communities (\$65,876 or greater), and that **high minority communities (25% or more people of color) face a cumulative exposure rate to environmentally hazardous facilities and sites which is over twenty times greater than low minority communities (less than 5% people of color)** (Faber & Krieg 9-10).

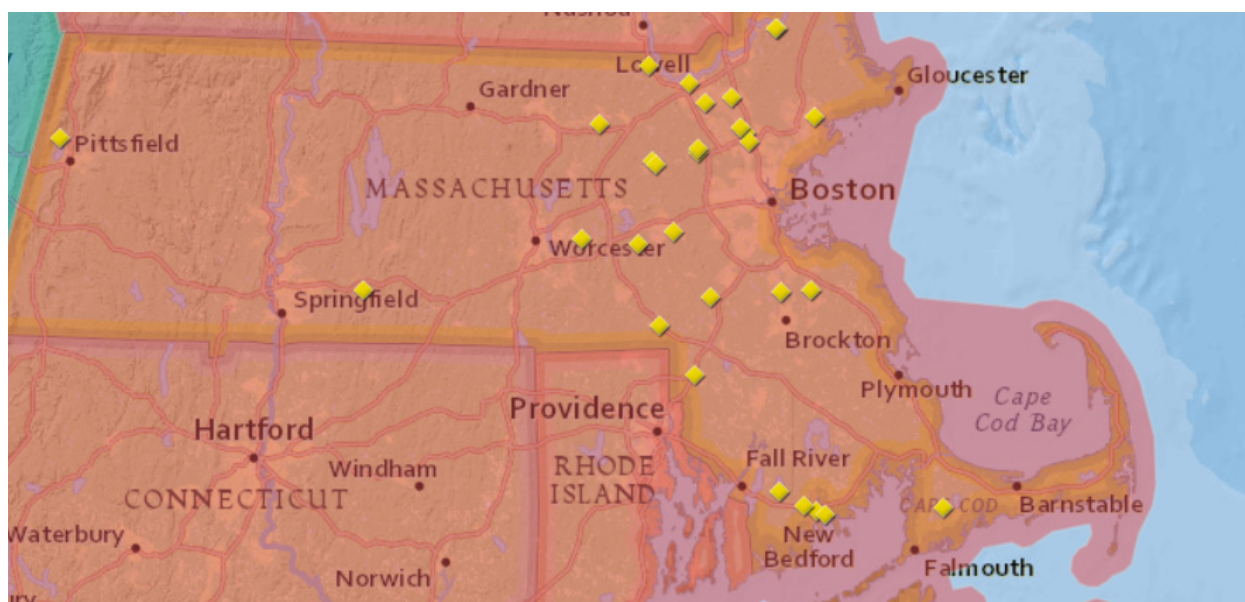


Fig. 1. Map of NPL Sites in Massachusetts. “Superfund National Priorities List (NPL) Where You Live Map”. *United States Environmental Protection Agency*, epa.maps.arcgis.com/apps/webappviewer/index.html?id=33cebcdfdd1b4c3a8b51d416956c41f1. Accessed 9 Aug. 2021.

One of the state’s Superfund sites is located on the harbor in New Bedford, where two electric capacitor manufacturing plants left the site contaminated (EPA). In 1983 both the United

States Department of Justice and the state of Massachusetts filed complaints against the two plants for the release of poly-chlorinated bi-phenyls (PCBs) into the New Bedford Harbor in southeastern Massachusetts (EPA). The Aerovox plant and the Cornell-Dubilier plant used PCBs in their operations from approximately 1947 to 1978 (EPA). PCBs are a probable human carcinogen, and in 1979 Massachusetts had to impose restrictions on fishing and lobstering when unsafe concentrations of the PCBs were found in species like lobsters, flounders, eels, and bluefish (EPA). A settlement for over 100 million dollars was reached in 1992, and subsequent settlements have been reached, notably a \$366.25 million settlement to expedite the ongoing harbor cleanup (EPA,).

Consistent with the findings of Daniel Faber and Eric Krieg, this Superfund site is situated close to EJ populations (Mass.gov). 78.3% of the New Bedford population is a part of an EJ block group (Mass.gov). In other words, most New Bedford residents live in communities which meet one of the three demographic criteria- minority population, median household income, and household English language isolation- to be considered an EJ population as outlined by the state.

Violations of the Clean Water Act

The Massachusetts Bay Transportation Authority (MBTA)

The EPA and the MBTA reached a \$1.4 million settlement in 2004 for violations of The Clean Water Act among other environmental violations (EPA). For years on end the MBTA discharged wash water, cooling water, and storm water into Massachusetts rivers without any of the required permits. They also lacked oil-spill control plans (EPA).

Exxonmobil

Exxonmobil was charged with violating the Clean Water Act in 2008, and paid \$6 million as a part of a plea agreement. The violation occurred in 2006 when more than 15,000 gallons of diesel fuel spilled from their petroleum storage terminal located in Everett and into the Mystic River (United States Department of Justice).

This is not, however, an isolated instance for Exxonmobil. Exxonmobil reportedly continues to pollute at the Everett facility putting both the environment and human populations at risk (Conservation Law Foundation [CLF]). CLF is pursuing legal action against them for what CLF asserts are blatant violations of the Clean Water Act and disregard for neighboring communities, many of which are already vulnerable; 100% of Everett residents live in communities that are considered EJ populations (Mass.gov).

The Everett Terminal borders both the Island End and Mystic River (CLF). The pollutants from petroleum operations at the terminal- delivering and storing oil products like gasoline, heating oil, kerosene, and jet fuel- include chemicals called Polycyclic Aromatic Hydrocarbons, or PAHs, which are threats to human health. Exxonmobil regularly exceeds the legal limit of release of these toxic PAHs by an average of 1,666 percent (CLF).

Short term impacts to human health from PAHs include: irritated breathing passages and eyes, nausea and vomiting, and skin irritation and inflammation (CLF). Long term exposure can cause blood or liver abnormalities, skin, lung, bladder, and gastrointestinal cancers, cataracts, kidney and liver damage, redness and inflammation of the skin, harmful effects on reproduction and immune function, break down of red blood cells, DNA damage, and cell damage via gene mutation and cardiopulmonary mortality (CLF).

Climate change poses added risks because more frequent and severe storms stir up the river and bring pollutants to the surface (CLF). Storage tanks can also rupture or fail as proven by Hurricane Harvey in 2006 when at least 145,000 gallons of fuel and toxic pollutants were

released along the Texas Coast (CLF). In a letter from the Everett Terminal Superintendent to EPA, the superintendent acknowledged that “Given the terminal’s location, a security incident leading to a release at the terminal would likely have catastrophic effects on both human life and the environment,” (CLF). Exxonmobil has also neglected to prepare its facilities to be resilient against climate change related events (CLF).

The Role of Business

As the previous cases demonstrate, businesses have the potential to inflict harm on the communities in which they operate. As articulated by Daniel Faber and Eric Krieg,

In order to bolster profits and competitiveness, industry typically adopts pollution strategies which are not only more economically efficient but that also offer the path of least political resistance. The less political power a community possesses, the fewer resources a community has to defend itself; the lower the level of community awareness and mobilization against potential ecological threats, the more likely they are to experience arduous environmental and human health problems at the hands of business and government. (1).

Additionally, the business risk posed by regulatory enforcement has proven to not be enough to stimulate at the minimum compliance with environmental laws.

Even so, the intention of this report is not to vilify industry or larger firms, but rather to objectively examine business and identify its role. Businesses should objectively be viewed as entities which influence the health and well-being of both people and the planet, which is why it is so necessary for businesses to be cognizant of this role. Especially so in relation to EJ, where poor health outcomes are directly linked to proximity to polluting businesses and polluted sites.

SBN and their allies hold the business community to a different standard. Through membership with SBN, small and mid-sized businesses demonstrate that they are cognizant of the role of business, and that they share the vision for a more sustainable economy- an economy with proper regard for people and all living things. The business narrative doesn’t have

to be limited to minimizing environmental harm, but can also link value creation and profitability to a positive environmental and social profile. Businesses of all legal structures and industries can choose to create value. Two cases of independent businesses that through membership with SBN and their business stories, show they are conscious of the role and responsibility of business, are emphasized:

LochTree

Lochtree demonstrates a commitment to EJ through various water-related partnerships. LochTree's mission is "To Create a Marketplace for Sustainable Products While Helping Foster a Healthier World Tomorrow" (Lochtree). Sustainability has a place in the firm's business model by fulfilling the consumer need for eco-friendly products, but they also help to fund initiatives that directly address pollution abatement and access to clean water (Lochtree). One of those partnerships is with the Rosalia Project, which approaches the water pollution problem through education, prevention, and cleanup efforts (LochTree). Another partnership is with OffGridBox, which is a global company headquartered in Cambridge that provides clean water and solar power to people in remote areas (Lochtree).

Supporting water-related initiatives is especially relevant in the context of EJ. A study conducted by the National Resources Defense Council, the Environmental Justice Health Alliance for Chemical Policy Reform (EJHA), and Coming Clean, studied compliance with and enforcement of the Safe Drinking Water Act (SDWA) in communities alongside various sociodemographic characteristics. The study found that communities of color and low income communities experienced elevated rates of drinking water violations (4). The study also found that the violations were more severe and tended to remain uncorrected in communities with the highest racial, ethnic, and language vulnerability (Kristi et al 18-19).

A factor that can set independent businesses apart from other business models in the context of sustainability is the direct influence of the business owner on practices of the

business. In the case of LochTree, the entire business was born from the founder's own concern for the environment (LochTree, 2021). As a competitive rower, the founder Henry grew up deeply connected with water (LochTree, 2021). Later as coach for the Junior Men's Single US rowing team, Henry traveled to Rio for the 2015 Junior World Championships, where he saw firsthand how widespread pollution and a lack of safe water impacted community health (LochTree, 2021). This experience has manifested itself into LochTree in the form of bringing awareness to water issues, and by forming water-related partnerships (LochTree, 2021).

7th Wave Brewing

7th Wave Brewing, a solar-powered craft brewery, sets a strong example for embedded sustainability with a community centric approach to their business operations in Medfield. More specifically, they are a leader for small businesses in the local clean energy economy in meeting 200% of their electricity needs with a 500-kilowatt solar array (7th Wave Brewing). In addition to carbon reduction, 7th Wave Brewing is intentional in waste reduction by collecting and reusing the Paktech packaging handles from their beer packs along with their 22 oz bottles (7th Wave Brewing). Spent grain, which is a by-product of brewing, is brought to local farms for the cows (7th Wave Brewing). Waste reduction is even incorporated into design elements with the use of old pallets and reclaimed wood to build out most of the brewery's furniture and shelving, custom high-top tables, merchandise displays, gates, bookshelves and the game room soccer billiards (7th Wave Brewing).



Figure 2. 7th Wave Brewery's 500-kilowatt Solar Array. 7th Wave Brewery. Image of Solar Array. *Facebook*, 22 Apr. 2021, www.facebook.com/7thwavebrewing/photos/2080382228770745.

7th Wave demonstrates a regard for their community in other ways too, like by offering a book-swap for their customers (7th Wave Brewing). Every Friday in the Spring season of 2021, they acted as a pickup location for Siena Farms' CSA shares, helping to connect farmers and their CSA members (7th Wave Brewing). Another instance is their "wildly popular... "Give a

pint...Get a pint" blood drive event with The Scrawny Morgan Foundation and Dana Farber, Brigham and Women's and the Robert Kraft Blood Donor Center. For every pint of blood donated, the business gave a pint of beer to the blood donor as a reward (7th Wave Brewing)!

Sustainability is ensured along the supply chain too, with the selection of beans from coffee estates with superior practices of sustainability and the fair treatment and pay of employees (7th Wave Brewing). 7th Wave goes beyond being just a craft brewery by acting as stewards of the environment and community. Hence their mission statement: "Brew great beer while sustaining the planet," (7th Wave Brewing).

A Holistic Take on the Business Community

Issues of the economy, environment, race, and poverty are all overlapping and relevant to the theme of EJ. Ergo, SBN's mission to grow an economy that is local, green, and fair, concurs with principles of EJ. SBN was the first organization of businesses in the U.S. committed to a sustainable economy focusing on the sustainable bottom line of community, environment, and justice (SBN 10).

As one might anticipate, certain SBN initiatives as a part of the Strategic Plan for 2019-2021, are highly relevant to this research paper. Racial equity was formally prioritized in the plan. A recent success under the first strategic initiative "Ally with partners to build a fair, diverse, equitable, and inclusive local economy", is the launch of the Cambridge-Somerville Black Business Network (CSBBN), in partnership with Cambridge Local First, and facilitated by Nicola Williams of The Williams Agency (SBN 5). CSBBN is a network of black entrepreneurs and specific programming aims to support these businesses amid the pandemic and otherwise (SBN 12). Another initiative worth mentioning is the Sustainable Business Leader Program under the fourth strategic initiative: "Grow the Green Economy" (SBN 12). This certification program provides technical assistance and supports locally owned and independent businesses in greening their operations and practices, reducing their carbon footprint, and saving money

(SBN 12). This in turn helps to create businesses that are conscious of their environmental impact.

Final Thoughts

This report could continue for pages upon pages with the inclusion of similar cases, uncovering both the good and the bad as it relates to the impacts of business with respect to water quality and EJ. Additionally, one should acknowledge that there are many notable sources of harm to EJ communities: other sources of pollution (e.g. nonpoint pollution), lack of parkland and greenspace, the historic redlining of business and housing districts, gentrification, unequal impacts of climate change, and access to capital for black entrepreneurs. While not addressed in this report, they are important considerations nonetheless.

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